# Radiation Health

CDR Georges Younes
Force Radiation Health Officer
January , 2015

# Running a Successful Radiation Health Program

- Know your RHO
  - General Personality
    - Work History
    - Organizational skills
    - Technical ability
    - Charisma

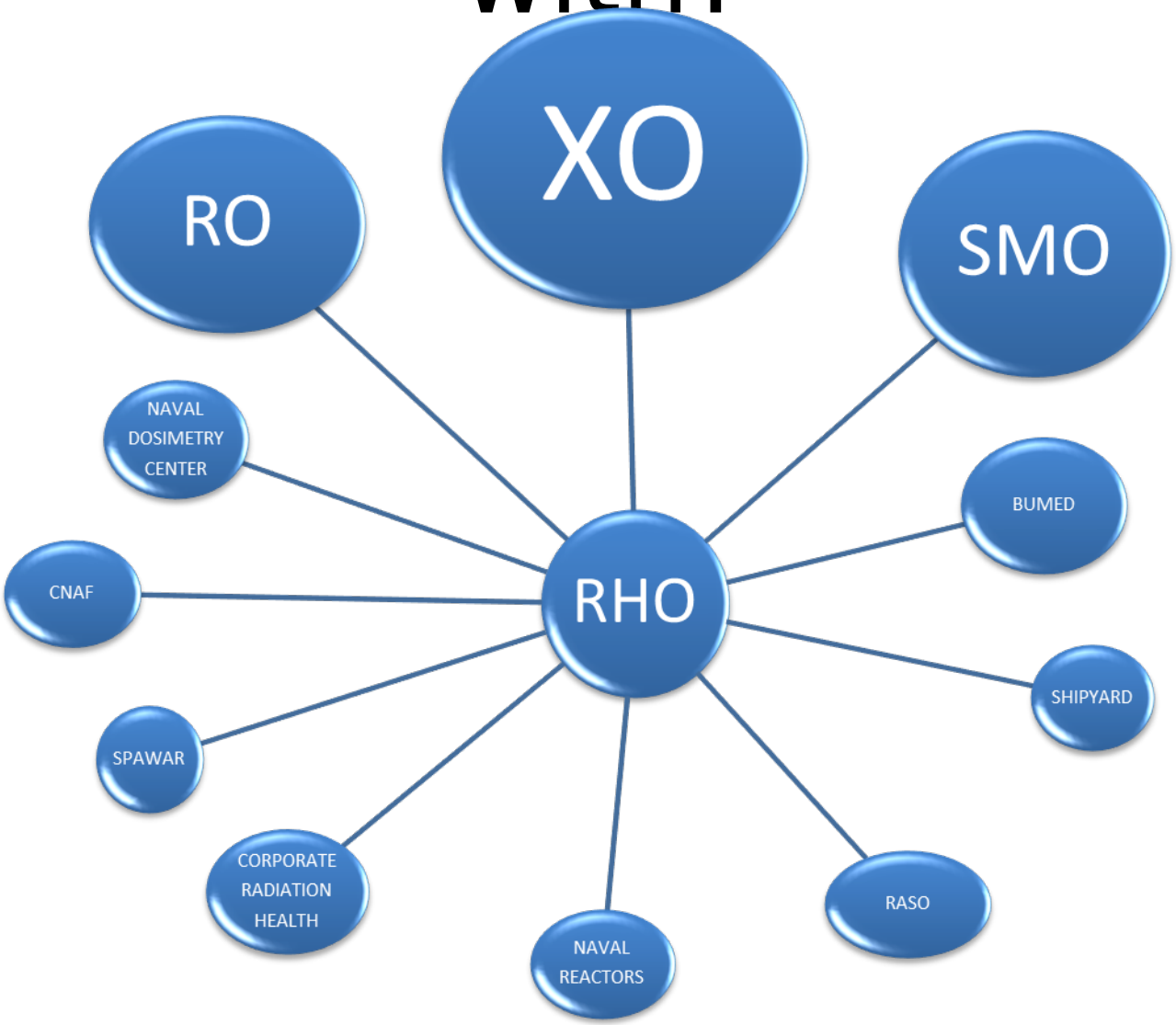
# Running a Successful Radiation Health Program

- Know your Reactor Officer
  - General Personality
    - Historic bounds of their program
      - Training
      - Dosimetry
    - Radiation Health knowledge base
      - Radiological Controls for Ships
      - BUMED references

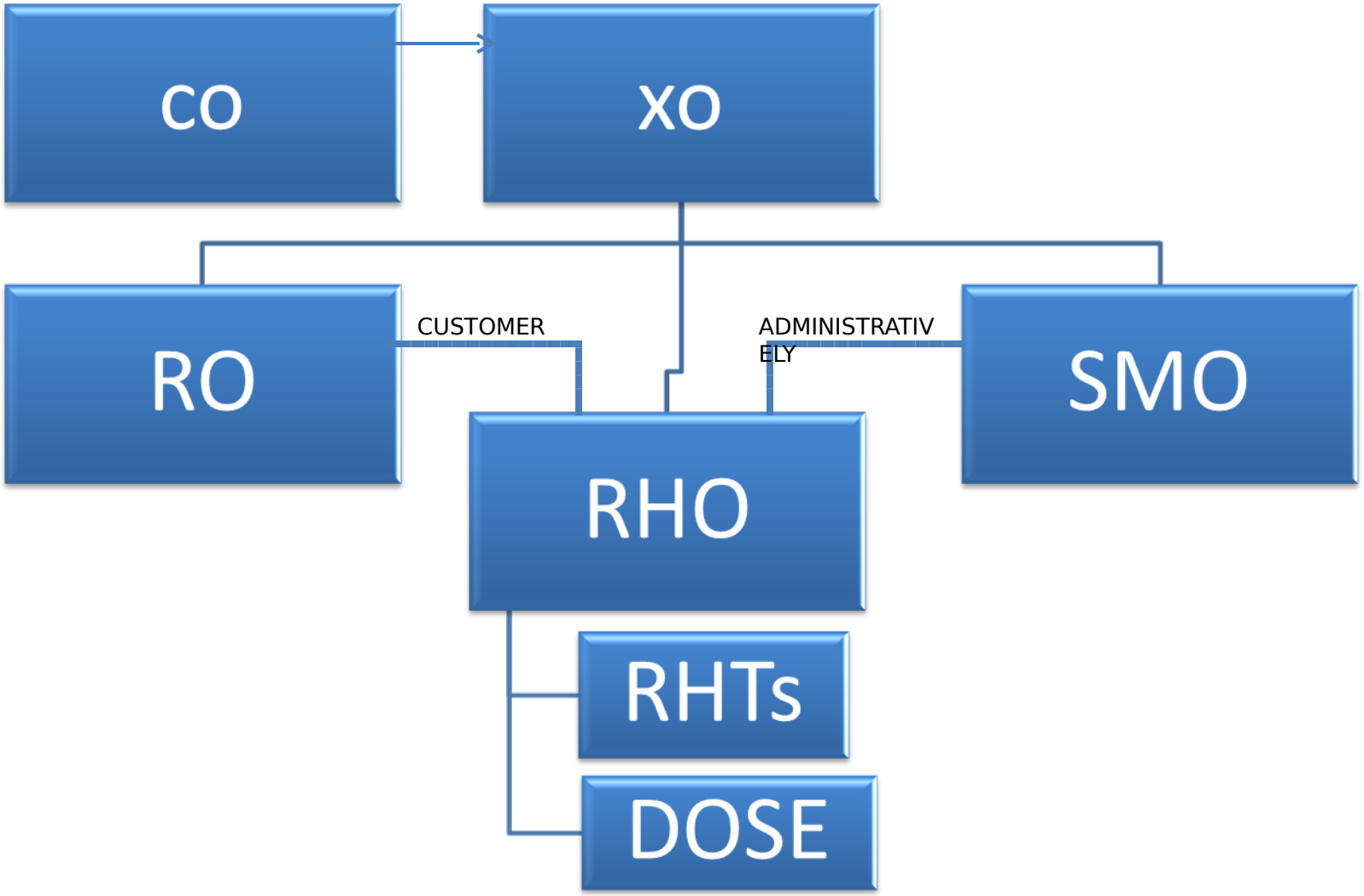
# Running a Successful Radiation Health Program

- Know your XO
  - General Personality
    - How much does he get involved in Radiation Health
    - Knowledge base
    - Motivation for the RHP

# Who does the RHO interact with?



# Who owns the RHP?



# Audits and Inspections

- 2 Audits per year
  - Internal Radiation Health Audit (within 5-7 months of previous audit)
    - 20 % of medical records
    - 100% of reports since last audit
    - XO, RO, SMO, and select personnel throughout the ship
  - External Radiation Health Audit (within 5-7 months of previous audit)
    - 20 % of medical records
    - 100% of reports since last audit
    - XO and personnel external of the program (FRHO and local RHOs from other commands

# Audits and Inspections

- Mobile Training Team (MTT) inspections
  - Naval Nuclear Propulsion Program (NNPP) intensive
  - Consists of at least 3 inspections
    - MTT1-MTT3: increase in intensity and difficulty from MTT1-MTT3
    - Consists of:
      - 20 medical records
      - Contaminated Injured Sailor (CIS) drill
      - Dosimetry Reports and Records
      - Dosimetry and RHT level of knowledge interviews
      - Internal Monitoring Evolution
      - Debrief with the XO
  - If in an availability for extended periods of time or a high number of errors are found an LTT may be conducted.

# Audits and Inspections

- Nuclear Propulsion Examination Board (NPEB or ORSE)
  - Naval Nuclear Propulsion Program (NNPP) intensive
  - Conducted once every 12-15 months
    - 20 medical records
    - Contaminated Injured Sailor (CIS) drill
    - Dosimetry Reports and Records
  - If in an availability for extended periods of time a PORSE may be conducted.
    - 20 medical records / Dosimetry Reports & Records

# Audits and Inspections

- Board of Inspection and Survey (INSURV)
  - Once every 3 years
  - Entire ship involvement
  - Historically Radiation Health does very well
  - Consider using RHO to prepare all of medical due to familiarity with inspections
- Radiological Affairs Support Program (RASP)
  - No defined frequency
  - All Radioactive material and NDT x-ray not associated with NNPP is inspected.

# Required Reports

- Dose Investigations and Dose Estimates
  - Within 14 days of incident or 14 days of discovering incident
- CO’s Dosimetry Report
  - Within 30 days of Receipt of exposure results
- Annual Report to NAVSEA 08
  - Either a final or preliminary report due on *their* desk NLT 31 Jan.
- Annual Report to BUMED
  - 01 April or within 30 days of receipt of final exposure results.
- Annual Report to the Individual
  - 01 April or within 30 days of receipt of final exposure results.
- Situational Exposure reports and Dose Transmittals
  - Within 30 days of member departing command or within 30 days of receipt of final exposure.

# Medical Examinations

- Radiation Medical Examination (RME)
  - NAVMED 6470/13
    - All documentation in the “comments” box should be directed toward ruling out or ruling in cancer, bone marrow suppression, or conditions that would prevent a person from working in radiation fields and/or contaminated areas.
    - All comments must be followed by Not Considered Disqualifying (NCD) or Considered Disqualifying (CD) and contain an adequate basis for this conclusion.
    - 99% of the time, a comment should contain either, “Not indicative of cancer or bone marrow suppression” or “No open wounds or lesions present”

# Abnormal Blood Count

- If HCT or WBC falls outside of the facility lab range regardless of how close it is to the lab range, it must be followed up by at least 2 repeat labs. (3 samples total)

  - The original lab must be addressed and given a basis for being out of range.

  - This may cause frustration due to normal human variance. Nonetheless, it must be documented.

  - Utilization of specialists is encouraged.

# Blood in Urine

- A positive result on dipstick must be followed by a microscopic RBC count
  - If ≥3 RBCs are found, it must be followed up by at least 2 repeat labs. (3 samples total)
  - The original lab must be addressed and given a basis for being out of range .
  - This may cause frustration due to normal human variance. Nonetheless, it must be documented.
  - Utilization of specialists is encouraged.

FTO

**MEDICAL RECORD** — **IONIZING RADIATION MEDICAL EXAMINATION**

1. Type of Examination: ☐ PE ☒ RE ☐ SE ☐ TE

2. Examining Facility: USS RONALD REAGAN (CVN 77)

| Medical History (to be completed by patient) | Y | N |
|---|---|---|
| 3. Personal history of cancer? | X | |
| 4. History of accidental or occupational exposure to ionizing radiation above Chapter 4, Table I Radiation Exposure Limits? (Whole Body: 3 rem/qtr, 5 rem/yr; Extremities: 50 rem/yr; Skin: 50 rem/yr; Eyes: 15 rem/yr; Organ: 50 rem/yr) | | X |
| 5. History of anemia or hematuria? | | X |
| 6. History of cancer therapy? | X | |
| 7. History of radiation therapy? | | X |
| 8. History of work involving the handling of unsealed sources? | | X |
| 9. History of radiopharmaceutical received for therapeutic purposes? | | X |
| 10. Have you had any significant illnesses or changes in your medical history since your last radiation medical examination that may be related to cancer? | | X |

Special Studies

11. Laboratory Finding Evaluation Date:

| | Results | Facility Lab Range |
|---|---|---|
| HCT | 45.0 | 45.0-55.0 |
| WBC | 5.4 | 5.0-10.0 |
| Differential (if required) | N: | L: M: |
| | E: | B: |

12a. Urine Dipstick Blood (if performed): Date: 25 Aug 2011 ☐ Negative ☒ Positive

12b. Urine Microscopic (if performed): Date: 25 Aug 2011 RBC Count 1-3

13. Additional Studies:

14. Summary of Abnormal Findings: (Note: Medical Examiner must explain all abnormal medical history, physical exam findings and other clinical testing required as might be related to the presence of cancer. For each finding, note whether the condition is considered disqualifying (CD) or not considered disqualifying (NCD) and the basis for such determination.) Continue on back if necessary.

| Physical Examination | NML | ABN | NE |
|---|---|---|---|
| 15. Thyroid | X | | |
| 16. Breast (F ≥ 40) | | | X |
| 17. Testes | X | | |
| 18. DRE (M ≥ 40) | | | X |
| 19. Skin | | X | |

3,6: BCC-NCD
19: 3" SCAR ON ABDOMEN FROM APPENDECTOMY-NCD

20a. Assessment: ☒ PQ / ☐ NPQ for Ionizing Radiation Work If NPQ, REAB Submitted on: _____

20b. BUMED Letter _____ received, member found ☐ PQ / ☐ NPQ for Ionizing Radiation Work by REAB.

| | | |
|---|---|---|
| 21. The medical history above is correct and the results of this examination have been explained to me. | Patient's Signature: | Date: 30 Dec 2011 |
| 22. Printed Name or Stamp of Examiner: CAPT AWESOME, MD, FS | Examiner's Signature: | Date: 30 Dec 2011 |
| 23. Printed Name or Stamp of Reviewing Physician: CAPT AWESOME, MD, FS | Reviewing Physician's Signature: | Date: 30 Nov 2011 |

| | | | |
|---|---|---|---|
| 24. Patient Identification | Name (Last, First, MI): TULONG, BEN, N | | |
| Command: USS RONALD REAGAN | | Rank/Grade: E-6 | Dept/Service: DOD/USN |
| Social Security Number: 011-02-333 | | Date of Birth: 8Apr 1970 | |

NAVMED 6470/13 (Rev. 2-2011) (FRONT)

FTO

What's wrong with this RME?

Unclassified

# MEDICAL RECORD — IONIZING RADIATION MEDICAL EXAMINATION

1. Type of Examination:
☐ PE ☒ RE ☐ SE ☐ TE

2. Examining Facility:
USS RONALD REAGAN (CVN 77)

| Medical History (to be completed by patient) | Y | N |
|---|---|---|
| 3. Personal history of cancer? | X | |
| 4. History of accidental or occupational exposure to ionizing radiation above Chapter 4, Table I Radiation Exposure Limits? (Whole Body: 3 rem/qtr, 5 rem/yr; Extremities: 50 rem/yr; Skin: 50 rem/yr; Eyes: 15 rem/yr; Organ: 50 rem/yr) | | X |
| 5. History of anemia or hematuria? | | X |
| 6. History of cancer therapy? | X | |
| 7. History of radiation therapy? | | X |
| 8. History of work involving the handling of unsealed sources? | | X |
| 9. History of radiopharmaceutical received for therapeutic purposes? | | X |
| 10. Have you had any significant illnesses or changes in your medical history since your last radiation medical examination that may be related to cancer? | | X |

Special Studies

11. Laboratory Finding Evaluation Date:

| | Results | Facility Lab Range |
|---|---|---|
| HCT | 45.0 | 45.0-55.0 |
| WBC | 5.4 | 5.0-10.0 |
| Differential (if required) | N: L: M: E: B: | |

12a. Urine Dipstick Blood (if performed):
Date: 25 Aug 2011 ☐ Negative ☒ Positive

12b. Urine Microscopic (if performed):
Date: 25 Aug 2011 RBC Count 1-3

13. Additional Studies:

14. Summary of Abnormal Findings: (Note: Medical Examiner must explain all abnormal medical history, physical exam findings and other clinical testing required as might be related to the presence of cancer. For each finding, note whether the condition is considered disqualifying (CD) or not considered disqualifying (NCD) and the basis for such determination.) Continue on back if necessary.

| Physical Examination | NML | ABN | NE |
|---|---|---|---|
| 15. Thyroid | X | | |
| 16. Breast (F ≥ 40) | | | X |
| 17. Testes | X | | |
| 18. DRE (M ≥ 40) | | | X |
| 19. Skin | | X | |

3,6: BCC-NCD
19: 3" SCAR ON ABDOMEN FROM APPENDECTOMY-NCD

20a. Assessment: ☒ PQ / ☐ NPQ for Ionizing Radiation Work If NPQ, REAB Submitted on: _____

20b. BUMED Letter _____ received, member found ☐ PQ / ☐ NPQ for Ionizing Radiation Work by REAB.

| | | |
|---|---|---|
| 21. The medical history above is correct and the results of this examination have been explained to me. | Patient's Signature: | Date: 30 Dec 2011 |
| 22. Printed Name or Stamp of Examiner: CAPT AWESOME, MD, FS | Examiner's Signature: | Date: 30 Dec 2011 |
| 23. Printed Name or Stamp of Reviewing Physician: CAPT AWESOME, MD, FS | Reviewing Physician's Signature: | Date: 30 Nov 2011 |

| | | | |
|---|---|---|---|
| 24. Patient Identification | Name (Last, First, MI): TULONG, BEN, N | | |
| Command: USS RONALD REAGAN | | Rank/Grade: E-6 | Dept/Service: DOD/USN |
| Social Security Number: 011-02-333 | | Date of Birth: 8 Apr 1970 | |

NAVMED 6470/13 (Rev. 2-2011) (FRONT)

FTO

Unclassified

# MEDICAL RECORD — IONIZING RADIATION MEDICAL EXAMINATION

1. Type of Examination: ☐ PE ☒ RE ☐ SE ☐ TE

2. Examining Facility: USS RONALD REAGAN (CVN 77)

CVN 76

| Medical History (to be completed by patient) | Y | N |
|---|---|---|
| 3. Personal history of cancer? | X | |
| 4. History of accidental or occupational exposure to ionizing radiation above Chapter 4, Table I Radiation Exposure Limits? (Whole Body: 3 rem/qtr, 5 rem/yr; Extremities: 50 rem/yr; Skin: 50 rem/yr; Eyes: 15 rem/yr; Organ: 50 rem/yr) | | X |
| 5. History of anemia or hematuria? | | X |
| 6. History of cancer therapy? | X | |
| 7. History of radiation therapy? | | X |
| 8. History of work involving the handling of unsealed sources? | | X |
| 9. History of radiopharmaceutical received for therapeutic purposes? | | X |
| 10. Have you had any significant illnesses or changes in your medical history since your last radiation medical examination that may be related to cancer? | | X |

**Special Studies**

11. Laboratory Finding Evaluation Date:

| | Results | Facility Lab Range |
|---|---|---|
| HCT | 45.0 | 45.0-55.0 |
| WBC | 5.4 | 5.0-10.0 |
| Differential (if required) | N: L: M: E: B: | |

Outside of lab range follow up blood work and comments should exist

12a. Urine Dipstick Blood (if performed): Date: 25 Aug 2011 ☐ Negative ☒ Positive

12b. Urine Microscopic (if performed): Date: 25 Aug 2011 RBC Count 1-3

3 RBCs require follow up and a comment

13. Additional Studies:

>90 days from exam date

14. Summary of Abnormal Findings: (Note: Medical Examiner must explain all abnormal medical history, physical exam findings and other clinical testing required as might be related to the presence of cancer. For each finding, note whether the condition is considered disqualifying (CD) or not considered disqualifying (NCD) and the basis for such determination.) Continue on back if necessary.

Adequately treated basal cell carcinoma is not disqualifying but this comment does not discuss the patient's status

3,6: BCC-NCD
19: 3" SCAR ON ABDOMEN FROM APPENDECTOMY-NCD

Has nothing to do with this physical

| Physical Examination | NML | ABN | NE |
|---|---|---|---|
| 15. Thyroid | X | | |
| 16. Breast (F ≥ 40) | | | X |
| 17. Testes | X | | |
| 18. DRE (M ≥ 40) | | | X |
| 19. Skin | | X | |

Patient is 41 years old

20a. Assessment: ☒ PQ / ☐ NPQ for Ionizing Radiation Work If NPQ, REAB Submitted on: _____

20b. BUMED Letter _____ received, member found ☐ PQ / ☐ NPQ for Ionizing Radiation Work by REAB.

| | | |
|---|---|---|
| 21. The medical history above is correct and the results of this examination have been explained to me. | Patient's Signature: | Date: 30 Dec 2011 |
| 22. Printed Name or Stamp of Examiner: CAPT AWESOME, MD, FS | Examiner's Signature: | Date: 30 Dec 2011 |
| 23. Printed Name or Stamp of Reviewing Physician: CAPT AWESOME, MD, FS | Reviewing Physician's Signature: | Date: 30 Nov 2011 |

Requires RHI, UMO, etc…

Review date is after performance date

| | | |
|---|---|---|
| 24. Patient Identification | Name (Last, First, MI): TULONG, BEN, N | |
| Command: USS RONALD REAGAN | Rank/Grade: E-6 | Dept/Service: DOD/USN |
| Social Security Number: 011-02-333 | Date of Birth: 8 Apr 1970 | |

Incorrect SSN

Writeover

NAVMED 6470/13 (Rev. 2-2011) (FRONT)

FTO

# Nuclear Field Duty

- Though technically not part of the Radiation Health Program, the RHO normally handles all NFD physicals.
- Ensure they are performed concurrently with the Radiation Health Physical.
- Currently only physicians with RAM/UMO Training are qualified to perform NFD exams IAW BUMED Directives.

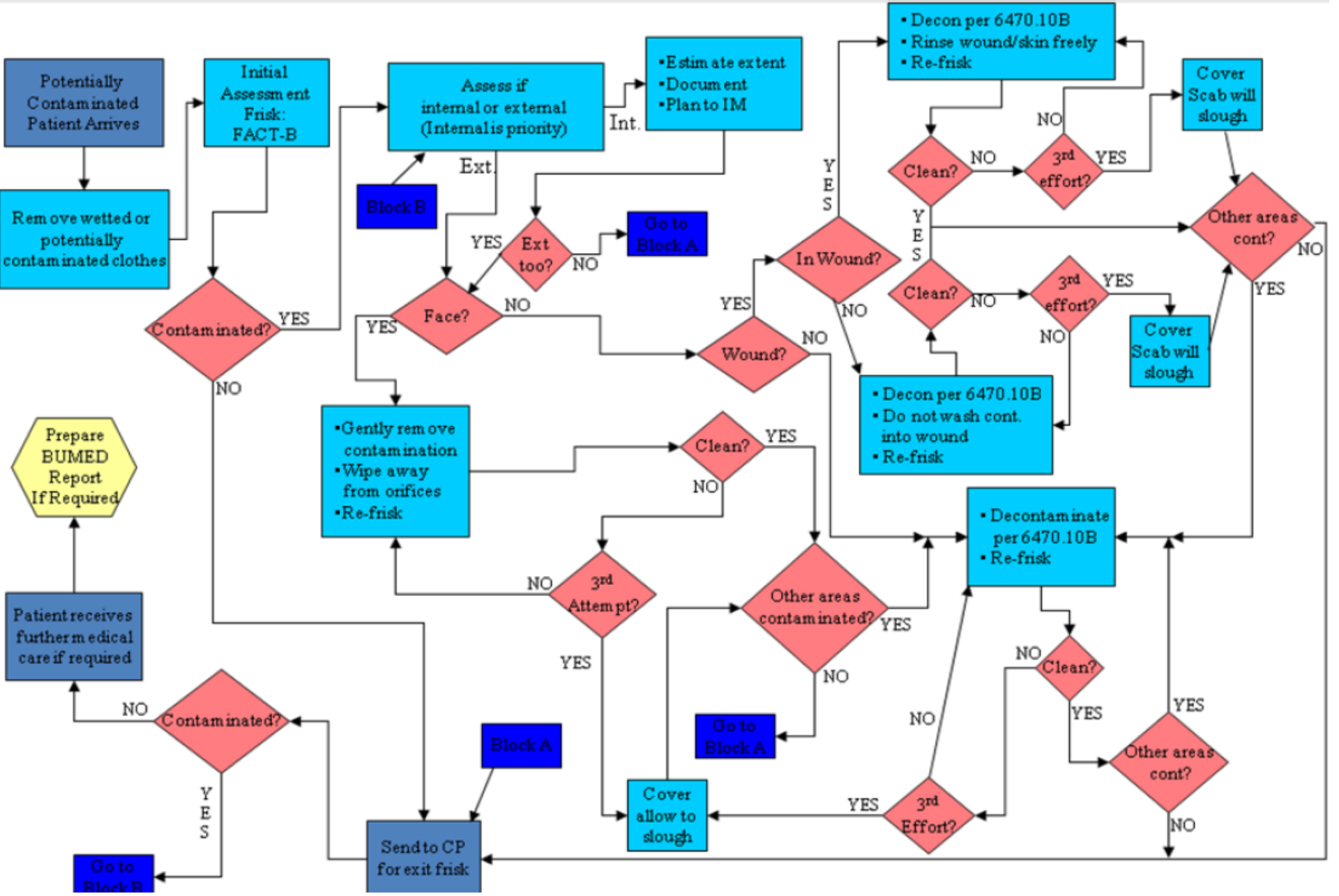
# Train Your Department To Keep you and the RHO Informed of:

- Cancer or Bone Marrow Suppression
- Radiation Workers with any blood in their urine (whether or not it is for an RME)
- HCT or WBC out of lab range (whether or not it is for an RME)
- Psychoses
- Psychotropic medication

# Contaminated Injured Sailor

- No cookie cutter method and not black and white
- Always treat life, limb, or eye threatening injuries first
- Avoid discussing radiological concerns
  - Let the RHO do this after you determine that no immediate danger of injury exists
- How would you want to be treated
- Be aware of the radiological boundaries
  - Don’t hesitate to cross them if you feel a threat of injury exists

# CIS decontamination Flow Chart



# Any Questions?